Nuclear Plant Decommissioning and Emergency Planning:

An NRC Oxymoron?

Dave Lochbaum
May 20, 2022

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 70

Emergency Planning

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Final rule.

"The Nuclear Regulatory Commission is upgrading its emergency planning regulations in order to assure that adequate protective measures can and will be taken in the event of a radiological emergency. Nuclear power plants and certain other licensed facilities are required to submit their emergency plans, together with the emergency response plans of State and local governments, to the Commission. The Commission and the Federal Energy Management Agency will review the plans for adequacy."

As one of the lessons learned from the March 1979 accident at Three Mile Island, the NRC upgraded its emergency planning regulations.

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 2, 19, 20, 21, 51, 70, 72, 73, 75 and 150

Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

"For an ISFSI [independent spent fuel storage installation] that is located on the site of a nuclear power reactor licensed for operation by the Commission, the emergency plan required by 10 CFR 50.47 shall be deemed to satisfy the requirements of this section [§72.32]."

Eight years to the day later, the NRC revised its emergency planning regulations to cover onsite dry storage of spent fuel.

From: Daniel Barss / NRR
To: Diane Jackson / NRR
Date: Tue, Apr 20, 1999 3:41 PM
Subject: Typical EP Exemptions for Permanently Shutdown Reactor

Diane,

In response to your request for information on what EP changes are made as a licensee goes from an operating condition to a permanently shutdown and defueled condition I have drafted the attached. It is a step by step accounting of the generalized exemptions that were granted to the four most recent EP exemptions for permanently shutdown reactors. (Trojan, Haddam Neck, Maine Yankee, and Big Rock Point)

10 CFR 50.47(b)
10 CFR 50.47(b)(1)
10 CFR 50.47(b)(3)
10 CFR 50.47(b)(4)
10 CFR 50.47(b)(5)
10 CFR 50.47(b)(6)
10 CFR 50.47(b)(7)
10 CFR 50.47(b)(9)
10 CFR 50.47(b)(10)
10 CFR 50.47(c)(2)
10 CFR 50.47(g)

10 CFR 50 Appendix E IV
10 CFR 50 Appendix E IV A.1
10 CFR 50 Appendix E IV A.3
10 CFR 50 Appendix E IV A.4
10 CFR 50 Appendix E IV A.5
10 CFR 50 Appendix E IV A.8
10 CFR 50 Appendix E IV B
10 CFR 50 Appendix E IV C
10 CFR 50 Appendix E IV D.1
10 CFR 50 Appendix E IV D.1
10 CFR 50 Appendix E IV D.2
10 CFR 50 Appendix E IV D.3

10 CFR 50 Appendix E IV E.8
10 CFR 50 Appendix E IV E.9.a
10 CFR 50 Appendix E IV E.9.c
10 CFR 50 Appendix E IV E.9.d
10 CFR 50 Appendix E IV F.1.viii
10 CFR 50 Appendix E IV F.2
10 CFR 50 Appendix E IV F.2.b
10 CFR 50 Appendix E IV F.2.c
10 CFR 50 Appendix E IV F.2.d
10 CFR 50 Appendix E IV F.2.e
10 CFR 50 Appendix E IV F.2.f

In April 1999, the NRC identified nearly three dozen sections of its regulations that did not apply to permanently shutdown reactors that were being remedied via exemptions.

From: George Hubbard, NRR
To: Diane Jackson, Robert Palla, Timothy Collins, NRR
Date: Tue, Aug 8, 2000 2:01 PM
Subject: EP HISTORY

Here's what I've been able to put together. As you can see it is not a pretty picture. I believe this should give you a feel for what has been done in the past. Let me know if you need more information.

EP HISTORY

Humbolt Bay - Shutdown 1976 - Had no EP while operating

La Crosse - Shutdown 1987 - EP relief given based only on consideration of DBAs - zirconium fires not considered

Rancho Seco - Shutdown 1989 - EP relief given based only on consideration of DBAs - zirconium fires not considered

Ft. St. Vrain - Shutdown 1989 -EP relief given based only on consideration of DBAs - zirconium fires not considered

Dick Dudley said that up until this time (~1990) they only considered DBAs and then RES told them that they could have the zirconium fire and it should be considered. Based on this they started looking at zirconium fires. As indicated below, Trojan tried using SFUEL but had problems. After that they started developing the code SHARP which we (DSSA) have found problems with.

Yankee Rowe - Shutdown 1991 -EP considered zirconium fire to some extent but granted EP relief based on fact that plant had low density racks

Trojan - Shutdown 1992 - Considered zirconium fire - tried to use SFUEL to prove 565 °C criteria met but had problems - EP relief was granted based on SFP fragility analysis

SONGS 1 - Shutdown 1992 - Full EP maintained due to SONGS 2&3 remaining operational

Haddam Neck - Shutdown 1996 -EP relief granted based on meeting 565 °C criteria

Maine Yankee - Shutdown 1996 -EP relief granted based on meeting 10 hour criteria

Millstone 1 - Shutdown 1995 -Full EP maintained due to Millstone 2&3 remaining operational

Zion 1&2 - Shutdown 1996/7 - EP relief granted based on meeting 565 °C criteria

Big Rock Point - Shutdown 1997 -EP relief granted based on meeting 10 hour criteria

George Hubbard
2870

A year later, the NRC noted that the situation of regulations not covering a growing list of permanently shutdown plants was "not a pretty picture."

OFFICE OF THE INSPECTOR GENERAL

U.S. NUCLEAR REGULATORY COMMISSION

REVIEW OF NRC'S SPENT FUEL POOL INSPECTION PROGRAM AT DECOMMISSIONING NUCLEAR POWER PLANTS

OIG-00-A-01 August 16, 2000

That same month, the NRC's Office of the Inspector General reported that the NRC staff was developing regulations intended to pretty up the picture.

"NRC regulations pertaining to nuclear power reactors are primarily directed toward the safety of facilities that are licensed to operate. As reactors are permanently shutdown and enter decommissioning, licensees have had to rely on seeking regulatory relief, in the form of exemptions and amendments to their licenses. As a result, after years of ad hoc decisions on reactor decommissioning, NRC staff are developing regulations that take into account the different risks posed by decommissioning plants, including updated risk insights with regard to spent fuel pools."

Proposed Rules

Federal Register
Vol. 80, No. 223
Thursday, November 19, 2015

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 26, 50, 52, 73, and 140

[NRC–2015–0070]

RIN 3150–AJ59

Regulatory Improvements for Decommissioning Power Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Advance notice of proposed rulemaking; request for comment.

If speed kills, the NRC's pace fixing its defective regulations governing decommissioning nuclear plants would not bruise a marshmellow.

As of May 20, 2022, the NRC has still not rectified the mess. It's still not a pretty picture being handled by a plethora of exemptions.

And NRC knows, or at least gives lip service, to the notion that regulation by exemption is bad policy

CHALLENGES FOR THE NUCLEAR POWER INDUSTRY AND ITS REGULATORS: THE NRC PERSPECTIVE

REMARKS BY

DR. SHIRLEY ANN JACKSON, CHAIRMAN
U.S. NUCLEAR REGULATORY COMMISSION

BEFORE THE

REGULATORY INFORMATION CONFERENCE
THE CAPITAL HILTON HOTEL, WASHINGTON, D.C.
TUESDAY, APRIL 9, 1996

"Early in my tenure as Chairman, I became concerned that the NRC was repeatedly being asked for exemptions from the same relatively few regulations. This raised an obvious question: were the regulations so unduly onerous that exemptions were necessary — in which case a rule change would be appropriate — or were licensees not meeting their responsibility to comply with reasonable regulatory requirements? The answer was not self-evident, so I asked the staff to examine our exemption history, identify those regulations for which multiple exemptions had been granted, and evaluate whether we need to change the regulations.

The statistics indicate that approximately three quarters of the exemptions were associated with six rules (fire protection, containment testing, property insurance, emergency planning, general design criteria, and physical protection). We have already amended the regulation pertaining to containment leakage testing and plan to consider amending the other regulations as well.

I would like to take this opportunity, therefore, to clarify that I am not opposed to exemptions per se. They have their place in the NRC regulatory process -- there is no doubt about that. But if the problem is with the regulation itself, then it is far better policy to amend the regulation rather than routinely grant exemptions from it."

DECOMMISSIONING THE UNCERTAINTY

Commissioner Nils J. Diaz

Remarks Before the NEI/EPRI Decommissioning,
Planning, and Technology Forum
April 30, 2001 New Orleans, LA

"NRC's policy is to avoid the use of exemptions for recurring licensing actions"

Ironically, using exemptions for longstanding defects in its regulations for permanently shutdown reactors is an exemption from this NRC policy.

Since noting that emergency planning at permanently shutdown plants was "not a pretty picture," the NRC has revised its emergency planning regulations on at least four different occasions:

In January 2001, the NRC revised its emergency planning regulations to address the consideration of potassium iodide (KI).

The NRC revised its regulations in August 2007 to cover early site permitting for new nuclear reactors. The revised and new regulations affected emergency planning requirements (10 CFR 50.47), but only in the context of new reactors.

On November 23, 2011, the NRC revised its emergency planning regulations (10 CFR 50.47) to add provisions for new nuclear reactors and security-based events.

In June 2013, the NRC revised regulations to correct some things and clarify others. Among the clarifications was a revision to emergency planning regulations (10 CFR 50.47).

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

RICHARD L. BRODSKY, NEW YORK STATE ASSEMBLYMAN, FROM THE 92ND ASSEMBLY DISTRICT IN HIS OFFICIAL AND INDIVIDUAL CAPACITIES, WESTCHESTER'S CITIZENS' AWARENESS NETWORK (WESTCAN), PUBLIC HEALTH AND SUSTAINABLE ENERGY (PHASE), AND SIERRA CLUB – ATLANTIC CHAPTER (SIERRA CLUB),

Plaintiffs,

v. CIVIL ACTION No.

UNITED STATES NUCLEAR REGULATORY COMMISSION

Defendants. December 30, 2009

COMPLAINT FOR DECLARATORY JUDGMENT AND INJUNCTIVE RELIEF

Regulations and reactor operating licenses are issued after a process giving the public opportunities to legal contest a safety aspect.

Exemptions are granted via a "wink, wink, nudge, nudge" game between NRC and owners.

"This matter arises from a set of illegal acts by the Nuclear Regulatory Commission ("NRC") which permit Entergy Nuclear Operations, Inc., ("Entergy") the owner, operator, and licensee of Indian Point Energy Center ("IPEC") to evade critical safety requirements in violation of law and of the terms and conditions of its license. The NRC has for decades required commercial reactor operators to provide physical insulation against fire for electric cables that control reactor shutdown in an emergency and thereby protect against a meltdown of the reactor core and the consequent massive release of radiation. The insulation is required to last for at least one hour. On September 28, 2007 the NRC, illegally and in complete secrecy permitted IPEC to permanently operate with physical insulation that lasts only 24 minutes. That permission took the form of an "exemption" from the one hour requirement. The laws governing the NRC, notably the AEA, do not mention or grant to the NRC the power to issue an "exemption," to such a license condition, or safety and/or regulatory standard. The "exemption" was illegally granted in complete secrecy with no public notice, no opportunity for public comment, no opportunity to offer or question evidence, no public hearing, in violation of the NRC's own procedural requirements, and in violation of the AEA, APA, NEPA"

UNITED STATES COURT OF APPEALS

FOR THE SECOND CIRCUIT

August Term, 2011

(Argued: May 3, 2012 Decided: January 7, 2013)

Docket No. 11-2016-cv

RICHARD L. BRODSKY, New York State Assemblyman, From the 92nd Assembly District, in His Official and Individual Capacities, WESTCHESTER'S CITIZENS AWARENESS NETWORK (WESTCAN), SIERRA CLUB–ATLANTIC CHAPTER (SIERRA CLUB),

Plaintiffs-Appellants,

PUBLIC HEALTH AND SUSTAINABLE ENERGY (PHASE),

Plaintiff,

v.

UNITED STATES NUCLEAR REGULATORY COMMISSION,

Defendant-Appellee,

ENTERGY NUCLEAR OPERATIONS, INC.,

Defendant.

"... we conclude that the agency record does not permit a reviewing court to determine whether a reasoned basis exists for the NRC's decision not to afford any such public involvement in the exemption decision. We therefore vacate the judgment of the district court, which implicitly rejected this argument, with respect to plaintiffs' NEPA challenge only, and we remand this case to the district court with instructions for it in turn to remand to the NRC so that the agency may (1) supplement the administrative record to explain why allowing public input into the exemption request was inappropriate or impracticable, or (2) take such other action as it may deem appropriate to resolve this issue."

Assemblyman Brodsky fought the law, and the law won.

The public lost. Big time.

Principles of Good Regulation

As a responsible regulator with a very important safety and security mission, our values guide us in maintaining certain principles in the way we carry out our regulatory activities. These principles focus us on ensuring safety and security while appropriately balancing the interests of the NRC's stakeholders, including the public and licensees. The following table briefly describes these principles.

Independence:	Nothing but the highest possible standards of ethical performance and professionalism should influence regulation. However, independence does not imply isolation. All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered. Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated.
Openness:	Nuclear regulation is the public's business, and it must be transacted publicly and candidly. The public must be informed about and have the opportunity to participate in the regulatory processes as required by law. Open channels of communication must be maintained with Congress, other government agencies, licensees, and the public, as well as with the international nuclear community.
Efficiency:	The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required, and must be a constant agency goal. NRC must establish means to evaluate and continually upgrade its regulatory capabilities. Regulatory activities should be consistent with the degree of risk reduction they achieve. Where several effective alternatives are available, the option which minimizes the use of resources should be adopted. Regulatory decisions should be made without undue delay.
Clarity:	Regulations should be coherent, logical, and practical. There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated. Agency positions should be readily understood and easily applied.
Reliability:	Regulations should be based on the best available knowledge from research and operational experience. Systems interactions, technological uncertainties, and the diversity of licensees and regulatory activities must all be taken into account so that risks are maintained at an acceptably low level. Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition. Regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes.

For more than two decades the NRC has handled regulations it confessed are "not a pretty picture" by forcing owners and its staff to process exemption after exemption that deny public involvement. How? Only an unprincipled regulator would even try such an antic.

NRC source: https://www.nrc.gov/about-nrc/values.html